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तकनीकी ड्राइंग – अभिविन्यास के अन्तर और स्थान उभार अन्तर क्षेत्र

Indian Standard

TECHNICAL DRAWINGS — TOLERANCING OF ORIENTATION AND LOCATION — PROJECTED TOLERANCE ZONE

UDC 744·43 : 621 : 753·1

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

December 1993

Price Group 3

Drawings Sectional Committee, LM 02

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 10578 : 1992 'Technical drawings — Tolerancing of orientation and location — Projected tolerance zone', issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendations of the Drawings Sectional Committee (LM 02) and approval of the Light Mechanical Engineering Division Council.

The text of ISO standard has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted ISO standard, reference to ISO 1101 : 1983 has been made. The Indian Standard IS 8000 (Part 1) : 1985 'Geometrical tolerancing on technical drawings : Part 1 Tolerances of form orientation, location and run-out and appropriate geometrical definitions (*first revision*)' which is identical with ISO 1101 : 1983 is to be substituted in its place.

Indian Standard

TECHNICAL DRAWINGS — TOLERANCING OF ORIENTATION AND LOCATION — PROJECTED TOLERANCE ZONE

1 Scope

This International Standard defines the method of tolerancing by indication of a projected tolerance zone and specifies the method of indication.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1101:1983, *Technical drawings — Geometrical tolerancing — Tolerances of form, orientation, location and run-out — Generalities, definitions, symbols, indications on drawings.*

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 1101 apply.

NOTE 1 The definition of the "minimum external projection of the feature" is under consideration and will be added at a later date to this International Standard.

4 Projected tolerance zone

The projected tolerance zone applies to the minimum external projection of the feature which is

- indicated on the drawing by the symbol Ⓟ followed by the projected dimension,
- represented by a chain thin double-dashed line in the corresponding drawing view, and
- indicated in the tolerance frame by the symbol Ⓟ placed after the tolerance of the toleranced feature.

See figure 1.

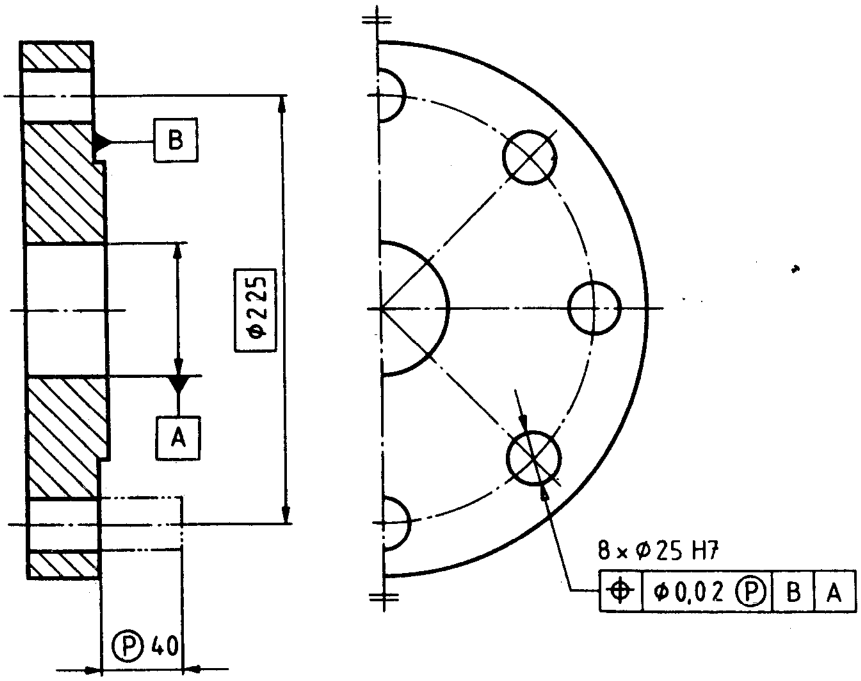


Figure 1

Annex A
(informative)

Examples of indication on drawings, interpretation and functional length

A.1 Indication and interpretation

Consider the example of a screw 3 passing through a part 2 and fastening into a part 1, as shown in figure A.1.

The specification of the part 1 is given in figure A.2 a) and the corresponding interpretation is given in figure A.2 b).

The position of the axis of the threaded hole in part 1 (see figure A.3) shows that it would be impossible to insert the screw. There are a number of possible ways to eliminate this interference as follows.

a) The hole size of part 2 could be increased as shown in figure A.4 but this solution may not be feasible if the functional conditions relating to shouldering or centring do not permit it.

b) The tolerance for part 1 could be tightened but this may increase the cost of the part.

c) An additional tolerance could be specified, for example a perpendicularity tolerance of smaller value than the location tolerance, but this also increases the cost of the part.

d) Alternatively a projected tolerance zone may be specified as shown in figure A.5 b). This allows for a maximum tolerance while ensuring assembly [see figure A.5 a)]. The interpretation is given in figure A.5 c).

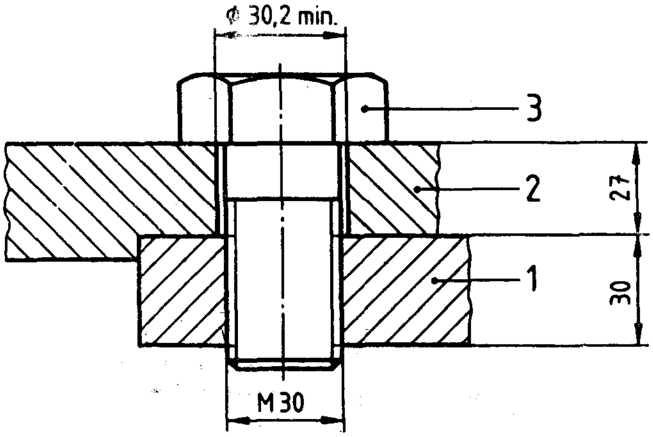
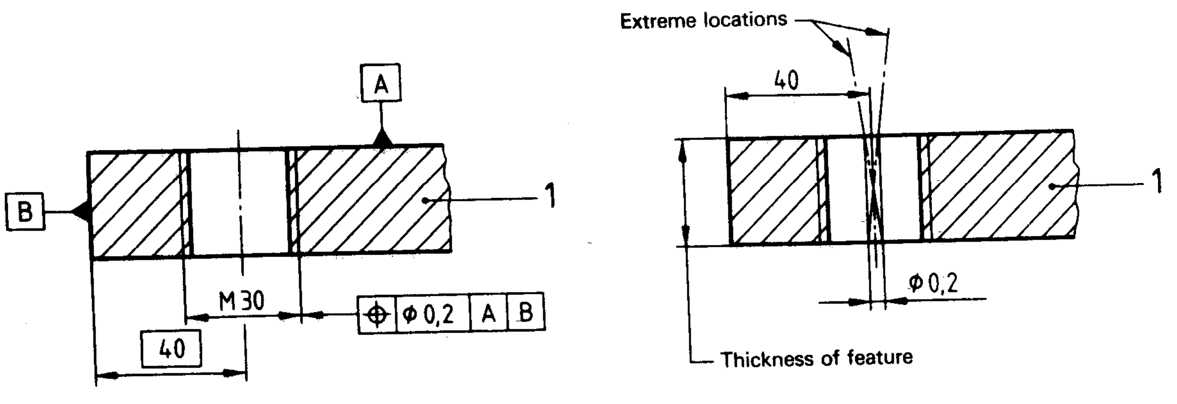


Figure A.1



a) Indication on the drawing

b) Interpretation

Figure A.2

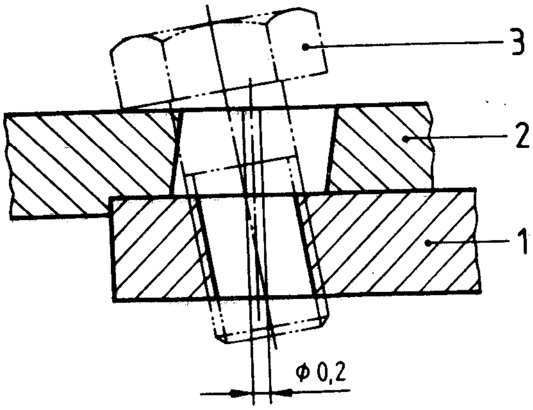


Figure A.3

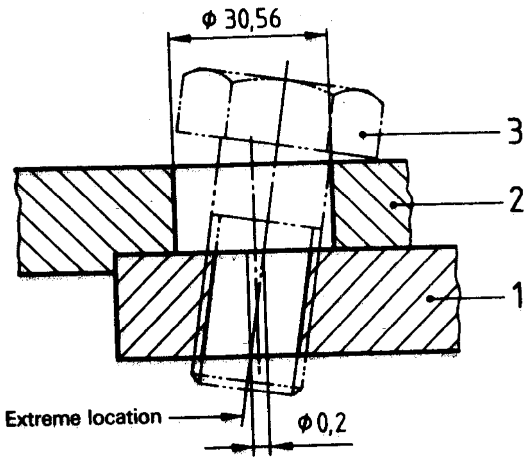
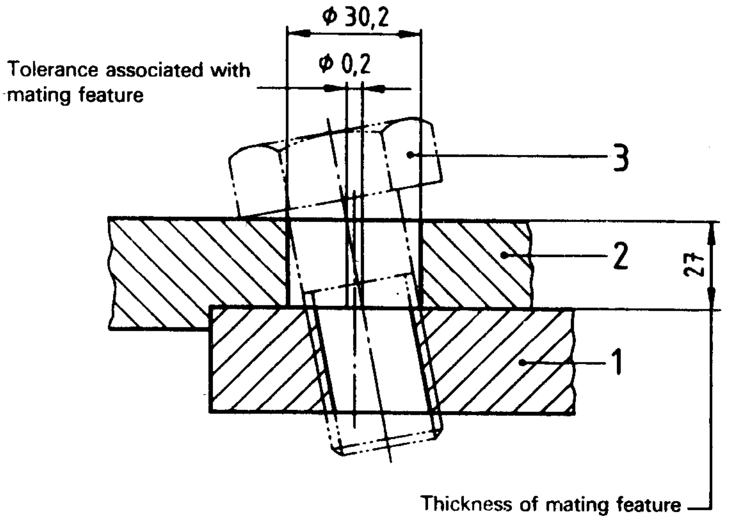
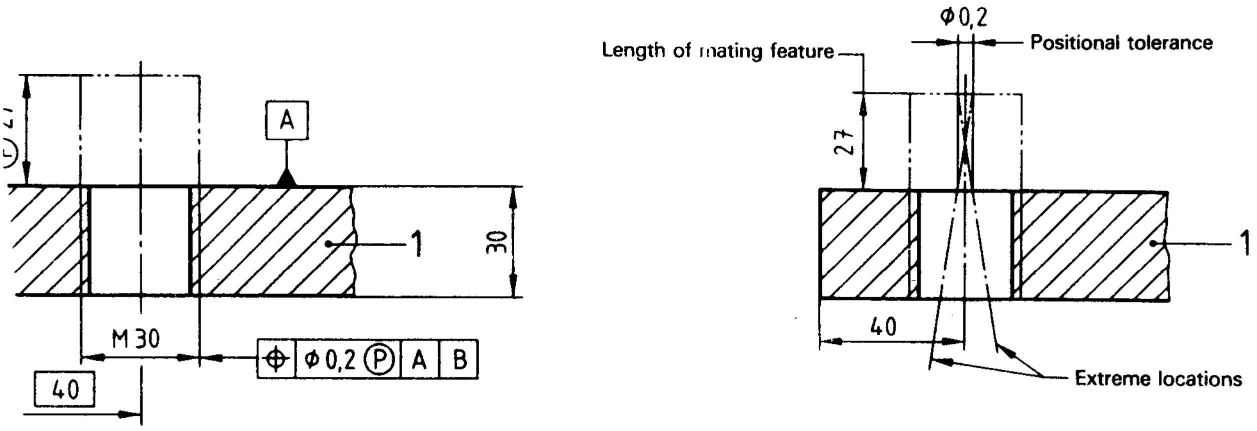


Figure A.4


Φ 30,2
Tolerance associated with mating feature
Φ 0,2
3
2
1
27
Thickness of mating feature

a) **Assembly assured**



b) **Indication on the drawing**

c) **Interpretation**

Figure A.5

A.2 Functional length of projected tolerance zone

The functional length of a projected tolerance zone is a minimum. Where the feature is a screw joining two parts, the minimum specified length is the maximum permissible thickness of the mating part(s). Where the feature is a stud or dowel pin joining two parts, the minimum specified length is the maximum length of the projecting portion of the stud or pin. See figure A.6.

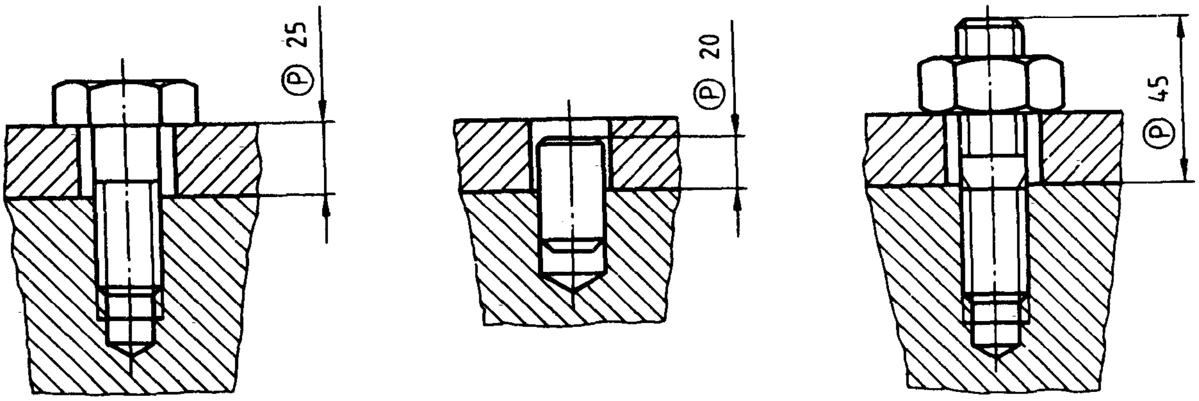


Figure A.6

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
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Regional Offices :	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	331 01 31 331 13 75
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